

INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2005	Park: Crater Lake NP
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Permit#: CRLA-2004-SCI-0007	
Park-assigned Study Id. #: CRLA-04024	
Project Title: Distribution and relative abundance of bat species in Crater Lake National Park, Redwood National and State Parks, and Oregon Caves National Monument	
Permit Start Date: Aug 01, 2004	Permit Expiration Date Dec 28, 2005
Study Start Date: Aug 01, 2004	Study End Date Dec 28, 2005
Study Status: Completed	
Activity Type: Inventory	
Subject/Discipline: Mammals	
Objectives: The objectives of this study were to: 1) determine the diversity, relative abundance, and activity of bats in CRLA, 2) determine the distribution of bats in CRLA, 3) compare acoustical and live capture techniques for inventorying bats	
Findings and Status: <p>At CRLA, 119 bats representing 6 species were captured in mist nets during 24 nights (10,339 m2 net hours of netting effort). Three species represented 68.1% of my mist net captures: silver-haired bats (26.1%), long-eared myotis (21.0%), and long-legged myotis (21.0%). The remaining 31.9% of my captures consisted of Yuma myotis (16.0%), little brown myotis (11.8%), and big brown bats (4.1%).</p> <p>Three sites provided 105 (88.2%) of all captures during 52.1% of all netting effort in CRLA. Vidae Falls Picnic Area, Boundary Springs, and Annie Spring provided the highest relative abundance estimates. Long-eared myotis and Yuma myotis appeared to be the most widespread species being captured at 6 (60%) sites. Silver-haired bats were captured at 4 (40%) sites. At CRLA, most (87.4%) of my captures were males.</p> <p>In addition to live capture techniques, Anabat sequence files were recorded at 19 sites during 80 nights. At CRLA, 93.4% of the activity during the first 2.5 hours of the night was represented by 3 species or species groups. Forty kHz myotis (long-legged myotis and little brown myotis), provided the highest bat activity (a mean of 41.1 passes per hour for the first 2.5 hours of the night). Long-eared myotis provided the second highest activity (11.6), followed by 50 kHz myotis (California myotis and Yuma myotis) (11.3). The remaining 6.6% of activity was represented by big brown bats (2.4), silver-haired bats (1.8), hoary bats (0.3), Mexican free-tailed bats (0.06), and California myotis (0.01).</p> <p>Eight sites provided 72.7% of the activity during the first 2.5 hours of the night at CRLA, Wizard Island (a mean of 93.0 passes per hour for the first 2.5 hours of the night), Boundary Springs (69.0), Bear Creek (62.3), Munson Valley (62.2), Ponderosa Pine Picnic Area (58.0), Intersection of Wheeler Creek and Grayback Road (52.4), Spruce Lake (52.1), and Annie Spring (51.5). Median activity at the all night monitoring sites was 104.0 passes per night. Four of 9 sites provided 78.3% of the activity at the static monitoring locations in CRLA, Wizard Island (a mean of 435.0 passes per night), Bear Creek (346.7), Spruce lake (233.3), and Sphagnum Bog (181.5). Based upon Anabat data collected during the first 2.5 hours of the night, 40 kHz</p>	

myotis were most widespread, being documented at 19 (100.0%) sites, long-eared myotis were documented at 16 (84.2%), and 50 kHz myotis at 15 (78.9%).

Six species or species groups were captured, recorded, and analyzed during 19 sampling events at CRLA. I recognized that both techniques likely missed species that were capable of avoiding the respective device or that flew outside the area sampled by these devices. However, for comparison, it was assumed that, at a given park, the total number of species detected by either method represented a complete inventory. Based upon that assumption, captures accounted for 32.3% and acoustic sampling 67.6% of the total occurrences. Where occurrences were documented by both methods at a sampling event, this accounted for 27.1% of the total occurrences. A greater number of species were detected by acoustic means than by capture for all sites combined. The number of species detected was greater for acoustic sampling than captures ($U = 45$, $P < 0.001$).

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?

No

Funding provided this reporting year by NPS:

18000

Funding provided this reporting year by other sources:

0

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college

Full name of college or university:

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